**Linear Functions: Student Worksheet**

**Payless Car Rental charges a base rate of $20 dollars and $0.30 a mile. Complete the chart and write a function to express the relationship between the miles driven and the cost of renting.**

|  |  |  |
| --- | --- | --- |
| **Miles driven** | **Process** | **Cost C(x)** |
| **2** | **20 + 2(.30)** |  |
| **5** |  |  |
| **10** |  |  |
| **20** |  |  |
| **50** |  |  |
| **x** |  |  |

**1. What does your independent quantity represent?**

**2. What does your dependent quantity represent?**

**3. Plot your data and show what each axis represents by labeling it appropriately using a squared sheet.**

**4. State a reasonable domain and range for your function:**

**Domain:**

**Range:**

**5. What is the slope of your line? What does it represent?**

**6. What is the y-intercept of your line? What does it represent?**

**7. Is the graph increasing or decreasing? How do you know?**

**8. How far can you drive if you can only spend $100?**

**9. Write a new function to reflect a change in the basic rate to $25. Make a graph.**

**10. How would this change affect your graph? Compare the graph to the first graph. Describe in different ways (algebraically, numerically in tables, or by verbal descriptions).**

**11. Write a new function to reflect a basic rate of $20, but a cost per mile of $0.25. Make a graph.**

**12. How would the graph of this new function compare to the first graph? Describe in different ways (algebraically, numerically in tables, or by verbal descriptions).**

**13. Input your first function into Y1 on a graphing calculator. Use your domain and range to help you set your viewing window. Graph your function and determine how much it would cost to drive for 200 miles by tracing or using the table feature of your calculator. Graph your other functions (#9, #11) and check your graphs.**